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S E C R E T

IN 38595

TOR: 21/1858Z OCT 69 RLP

S E C R E T 211756Z OCT 69 CITE [REDACTED]

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PRIORITY [REDACTED]

IDEALIST [REDACTED]

REF A [REDACTED] (IN 37012)

B [REDACTED] (IN 36407)

SUBJECT: [REDACTED] FLIGHT TEST PLAN

1. PLAN TO FLY MAGIC PAINT TEST FLIGHT WITH ARTICLE 383 ON
27 OCT 1969 WITH BACKUP DATE 28 OCT 69.

2. HQS GUIDANCE IN PARA 2 REF A APPLIES FOR THIS TEST.

3. NEW PAINT FORMULATIONS SHIPPED [REDACTED] ON
17 OCT 69. PACKAGE WEIGHS 12 1/2 LBS AND IS MARKED SUPPLY OFFICER

HOLD FOR [REDACTED]

4. AIRCRAFT PREPARATION AS FOLLOWS:

A. PAINTING WILL BE ACCOMPLISHED AT [REDACTED] BY

[REDACTED] PAINTERS. OLD TEST PAINT SURFACES WILL BE STRIPPED OFF
PRIOR TO APPLYING NEW PRIMERS AND MAGIC PAINT.

B. FOLLOWING COMBINATIONS OF NCR FORMULATIONS AND
PRIMERS TO BE TESTED:

(1) VERY HIGH TEMP (PLUS 27 DEGREES F) - SINGLE COAT OVER A
WHITE PRIMER.

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[Handwritten signatures and initials]

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(2) HIGH TEMP (PLUS 14 DEGREES F) - DOUBLE COAT OVER WHITE PRIMER.

(3) HIGH TEMP (PLUS 14 DEGREES F) PLUS YELLOW DYE - DOUBLE COAT OVER YELLOW PRIMER.

(4) LOW TEMP (- 8 DEGREES F) - DOUBLE COAT OVER YELLOW PRIMER.

(5) LOW TEMP (-8 DEGREES F) - DOUBLE COAT OVER WHITE PRIMER.

(6) HIGH TEMP (PLUS 14 DEGREES F) - SINGLE COAT OVER WHITE PRIMER.

C. PAINT SCHEME:

(1) TEST SURFACES WILL BE AS DESCRIBED IN PARA 1, REF B. ADDITIONALLY, BOTH SIDES OF CONTROL SURFACE ON VERTICAL STABILIZER WILL BE TREATED.

(2) ONE WING WILL BE PRIMED YELLOW; THE OTHER WHITE. THE FORMULATIONS DESCRIBED IN PARA 4B ABOVE WILL BE APPLIED TO THE TOP AND BOTTOM TEST SURFACES PER [] COORDINATED INSTRUCTIONS. TO ENHANCE VISUAL AND PHOTO OBSERVATION EACH FORMULATION SHOULD BE SEPARATED BY A SIX INCH WIDE BAND OF VELVET

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BLUE PAINTED CHORDWISE ACROSS THE TOP AND BOTTOM OF
THE WING TIP. [REDACTED] TO PROVIDE
HQs WITH DRAWINGS OF EXACT PAINT SCHEME ASAP.

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(3) VERTICAL STABILIZER - A RECTANGULAR TEST
AREA WILL BE PREPARED ON EACH SIDE OF THE CONTROL
SURFACE (RUDDER). ONE SIDE WILL BE COATED WITH
PARA 4B (2) FORMULATION. THE FORMULATION TO BE APPLIED
TO THE OTHER SIDE WILL BE SPECIFIED BY [REDACTED] AFTER
THE WING TEST AREAS ARE PAINTED.

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D. A REFERENCE COLOR SPECTRUM WILL BE APPLIED TO
THE UPPER SURFACE OF BOTH WINGS ON THE TRAILING EDGE, IMMEDIATELY
INBOARD OF THE TEST SURFACE.

E. SMALL DETACHABLE PANELS WHICH HAVE BEEN TREATED
WITH EACH OF THE SIX FORMULATIONS WILL BE ATTACHED TO THE
AIRCRAFT NEAR THE CANOPY HINGE FOR IN-FLIGHT OBSERVATION BY THE
U-2 PILOT. THESE SAMPLES ALSO TO BE USED FOR POSTFLIGHT LAB
ANALYSIS.

F. INSTRUMENTATION- REQUEST THERMOCOUPLE INSTALLATION
BE MODIFIED SO THAT TEMPERATURES ARE MEASURED ON EACH OF THE SIX
TEST SURFACES. FURTHER REQUEST THERMOCOUPLES BE ATTACHED IN

PAIRS WITH ONE SENSING POINT ON THE BARE METAL UNDER THE PAINT AND THE OTHER ON TOP OF THE PAINT. PURPOSE IS TO MEASURE THE TEMPERATURE GRADIENT ACROSS THE PAINT THICKNESS. INSTALLATION WILL BE CALIBRATED AND TESTED PRIOR TO FLIGHT.

5. TEST FLIGHT PROCEDURES- TEST WILL BE FLOWN BY PILOT IN CONJUNCTION WITH OTHER U-2C SCHEDULED ACTIVITY. TWO T-33 OBSERVATION SORTIES ARE REQUIRED. U-2C AND T-33 WILL RENDEZVOUS DURING INITIAL CLIMBOUT BETWEEN FL 300 - 350 WITH THE EXACT ALTITUDE DETERMINED BY COLDEST FORECAST TEMP AND ALT COMBINATION WITHIN CAPABILITY OF BOTH AIRCRAFT. INITIAL VISUAL CHECK, PHOTOGRAPHY AND DATA RECORDING WILL BE ACCOMPLISHED. U-2C WILL THEN CONTINUE TO OPERATIONAL ALTITUDE FOR COLD SOAK, ADDITIONAL DATA RECORDING BY U-2 PILOT AND OTHER PORTION OF MISSION. DURING TERMINAL DESCENT U-2C WILL RNDZ AGAIN WITH T-33 TO ACCOMPLISH ITEMS STATED IN PARA 6: REF B. DESIRE ADDITIONAL VISUAL CHECKS FROM A DISTANCE APPROX 1 NM ASTERN AND SLIGHTLY BELOW U-2C TO RECORD ANY DIFFERENCES NOTED FROM CLOSE-UP OBSERVATIONS. RENDEZVOUS, JOIN-UP, DATA RECORDING, AND FORMATION SAFETY PROCEDURES WILL BE AS PREVIOUSLY ESTABLISHED.

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6 VISUAL OBSERVATIONS - REQUEST SAME [] PILOTS FLY T-33 AS FOR 18 AUG TEST AS THEY MOST FAMILIAR WITH PROCEDURES. PARTICIPATING PILOTS SHOULD KNOW THE EXACT LOCATION OF ALL TEST SURFACES PRIOR TO FLIGHT TO INSURE ACCURATE DATA COORDINATION AND RECORDING OF TEMP AND COLOR OBSERVATIONS.

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7 PHOTOGRAPHY - HQS IS ATTEMPTING TO ESTABLISH A BASE LINE COORELATION BETWEEN TEMPERATURE, OBSERVED COLOR AND PHOTOGRAPHIC COLOR AND WILL CONTINUE EFFORTS TO IDENTIFY BEST FILM, FILTER AND PROCESSING COMBINATION FOR MAXIMUM RESULTS. HOWEVER, FOR THIS TEST IT IS MUTUALLY AGREED TO USE EKTACHROME X FILM WHICH IS CONSIDERED BEST FOR IN-FLIGHT PHOTOGRAPHY DESPITE ITS LIMITATIONS IN THE GREEN PORTION OF THE MAGIC PAINT COLOR SPECTRUM. IN AN ATTEMPT TO OPTIMIZE PHOTOGRAPHIC RESULTS RECOMMEND THE FOLLOWING:

- A. INSURE T-33 CANOPY COMPLETELY CLEAN.
- B. SUN SHOULD BE BEHIND CAMERA.
- C. IF SUN ANGLE VERY HIGH, LENS SHOULD BE SHADED.
- D. PER [] USE THE E-2 OR E-3 KIT FOR PROCESSING.
- E. ALL PHOTOGRAPHY OF TEST SURFACES SHOULD INCLUDE

THE REFERENCE COLOR SPECTRUM TO ESTABLISH A TRUE COLOR CORRELATION.

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F. PHOTOGRAPH ALL TEST SURFACES PRIOR TO FLIGHT.

8. [REDACTED] PROJECT OFFICER,

WILL ARRIVE WEST COAST 23 OCT 69. TO FUNCTION AS HQS TECHNICAL
COORDINATOR FOR THIS TEST. [REDACTED] WILL REQUIRE ACCESS TO

[REDACTED] FACILITIES.

9. PLS ADVISE ASAP IF PARA 1 SCHEDULE NOT FEASIBLE.

END OF MSG.

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